CLAIMS:

1. A head suspension assembly, comprising:

a beam component having a front end and a rear end;

a hinge component near the rear end of the beam component for connecting to an actuation means; and

a gimbal component near the front end of the main beam section for carrying a transducing head;

wherein at least one of the hinge component and the gimbal component is made from a first structural damping material having high stiffness and high damping capacity.

2. The head suspension assembly of claim 1, wherein the hinge component is made from the first structural damping material, and the gimbal is made from a second structural damping material having high stiffness and high damping capacity.

3. The head suspension assembly of claim 2, wherein the first structural damping material and the second structural damping material are substantially identical in composition.

4. The head suspension assembly of claim 1, wherein the first structural damping material is springy.

5. The head suspension assembly of claim 1, wherein the hinge component applies a preload on the transducing head through the beam component.

6. The head suspension assembly of claim 1, wherein the entire hinge component is substantially made from the first structural damping material only.

7. The head suspension assembly of claim 1, wherein the entire gimbal component is substantially made from the first structural damping material only.

8. The head suspension assembly of claim 1, wherein the hinge component has no external structural damping material attached thereto.

9. The head suspension assembly of claim 1, wherein the structural damping material has a modulus of elasticity greater than 30 gigapascals (4.35 $\times 10^5$ psi), and a damping capacity $\zeta$ (Zeta) greater than 0.02.

10. The head suspension assembly of claim 1, wherein the structural damping material has a modulus of elasticity greater than 50 gigapascals (7.25 $\times 10^6$ psi), and a damping capacity $\zeta$ (Zeta) greater than 0.05.

11. The head suspension assembly of claim 1, wherein the structural damping material is an alloy.

12. The head suspension assembly of claim 1, wherein the structural damping material is a laminate comprising a stainless steel layer and a damping material layer.

13. The head suspension assembly of claim 1, wherein the at least one of the hinge component and the gimbal component is separately made and attached to the beam component.

14. The head suspension assembly of claim 13, wherein the at least one of the hinge component and the gimbal component is attached to the beam component through an adhesive.

15. The head suspension assembly of claim 13, wherein the at least one of the hinge component and the gimbal component is attached to the beam component by welding.

16. A head suspension assembly, comprising:

a beam component having a front end and a rear end;

a hinge component for connecting to an actuation means, wherein the hinge component comprises a first structural damping material having high stiffness and high damping capacity, and the hinge component is separately made and attached to the rear end of the beam component; and

a gimbal component near the front end of the beam component for connecting to a slider assembly carrying a transducer.

17. The head suspension assembly of claim 16, wherein the hinge component is substantially made from the first structural damping material only.

18. The head suspension assembly of claim 16, wherein the first structural damping material is an alloy.

19. The head suspension assembly of claim 16, wherein the gimbal component comprises a second structural damping material having high stiffness and high damping capacity.

20. The head suspension assembly of claim 19, wherein the first structural damping material and the second structural damping material are substantially identical in composition.

21. A method for fabricating a vibration resistant head suspension assembly, the method comprising:

fabricating a beam component using a first material having high stiffness;

fabricating an end component using a second material having high stiffness and high damping capacity; and

attaching the end component to the beam component such that the end component and the beam component are movable together by an actuation means.

22. The method of claim 21, wherein the end component comprises a hinge portion attached to a rear end of the beam component, the end component connecting to the actuation means.

23. The method of claim 21, wherein the end component comprises a gimbal assembly attached to a front end of the beam component, the gimbal assembly connecting to a slider assembly.

24. The method of claim 21, wherein the second material is an alloy.

25. The method of claim 21, wherein the first material is a stainless steel.